

WHAT IS CLAIMED IS:

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5 1. An apparatus for aiding steering when a vehicle is being driven in reverse, the moving direction of the vehicle being determined in response to the position of steered wheels, the apparatus comprising:

a camera for capturing an image of an area behind the vehicle;

a monitor for displaying the image captured by the camera; and

10 a display control unit for displaying a guide marking for aiding steering, the marking and the image being simultaneously displayed on the monitor when the vehicle is being driven in reverse, wherein the marking provides a driver with at least first indication of the width of the
15 vehicle and a second indication of a prospective path of the vehicle corresponding to the position of the steered wheels.

2. The apparatus as recited in claim 1, wherein the vehicle has a detector for detecting the position of the
20 steered wheels, wherein the display control unit calculates the prospective path assuming that the vehicle is moved in reverse, on the basis of information from the detector, and wherein the marking is displayed according to the width of the vehicle, and at least one mark is displayed to appear
25 to be a predetermined distance behind the rear end of the vehicle on the prospective path.

3. The apparatus as recited in claim 2, wherein the marking includes an indication of a space that is as side
30 as the vehicle in appearance, the space being located behind the vehicle in the image.

4. The apparatus as recited in claim 2, wherein at least one of the marking includes an indication defined by two points that are spaced apart approximately by the width of the vehicle in appearance.

5. The apparatus as recited in claim 2, wherein the marking includes an end mark that approximately indicates the width of the vehicle in appearance at an apparent predetermined distance behind the rear end of the vehicle on the prospective path and side marks extending from the end mark toward the rear end of the vehicle, wherein the side marks are spaced apart approximately by the apparent width of the vehicle.

6. The apparatus as recited in claim 5, wherein the marking further includes two intermediate marks appearing between the end mark and the rear end of the vehicle, each intermediate mark extending between the side marks, wherein the intermediate marks indicate the apparent width of the vehicle.

7. The apparatus as recited in claim 2, wherein the predetermined distance appears to be approximately the same as the wheel base of the vehicle.

8. The apparatus as recited in claim 5, wherein the display control unit calculates the prospective path using polar coordinates and wherein the end mark is determined by a radial line extending from the polar coordinates.

9. The apparatus as recited in claim 2, wherein, when the prospective path is circular, the display control unit displays the path in an elliptical manner by compressing the prospective path in the longitudinal direction of the

vehicle at a predetermined rate.

10. The apparatus as recited in claim 2, wherein the display control unit shifts the indication of the prospective path in the direction of vehicle movement.

5 11. The apparatus as recited in claim 2, wherein the display control unit has an acquisition means for determining the steering speed, and wherein the display control unit calculates the prospective path using the current position of the steered wheels and a value obtained
10 by multiplying the steering speed by a predetermined coefficient.

12. The apparatus as recited in claim 2, wherein the vehicle has vehicle speed sensor for detecting the speed of the vehicle, and the display control unit has an
15 acquisition means for determining the steering speed, and wherein the display control unit calculates the prospective path using the current position of the steered wheels and a value obtained by multiplying the ratio of the steering speed and the vehicle speed by a predetermined coefficient.

20 13. The apparatus as recited in claim 1, wherein the image is displayed in black and white and the indicia are displayed in color.

14. An apparatus for aiding steering when a vehicle is
25 being driven in reverse, the moving direction of the vehicle being determined in response to the position of steered wheels, the apparatus comprising:

a camera for capturing an image of an area behind the vehicle;

a monitor for displaying the image captured by the

camera; and

5 a display control unit for displaying a guide marking that is fixed at a predetermined position with respect to the monitor screen for aiding a driver in parking, the control unit displaying the guide marking and the image simultaneously on the monitor when the vehicle moves in reverse, wherein the parallel parking is completed by causing the marking to coincide with a target point in the image, followed by backing while keeping the steered wheels
10 turned at their maximum angle.

15 15. The apparatus as recited in claim 14, wherein the fixed marking includes a pair of side marks that are spaced apart approximately by the apparent width of the vehicle and a fixed end mark formed by connecting ends of the side marks on the screen, and wherein the fixed guide marking includes a center mark positioned at the center of the fixed guide marking.

20 16. The apparatus as recited in claim 14, wherein the display includes a first marking used when performing parallel parking to the left and a second marking used when performing parallel parking to the right.

25 17. The apparatus as recited in claim 16, wherein the first marking and the second marking are selectively displayed depending on whether the vehicle is to be parked to the left or to the right.

30 18. The apparatus as recited in claim 14, wherein the vehicle has obstruction detectors for detecting an obstruction existing near the front corners of the vehicle, and wherein the display control unit displays the presence of the obstruction on the monitor screen on the basis of a

signal output from the obstruction detectors.

19. A method for aiding steering when a vehicle is driven in reverse, comprising:

5 displaying an image captured by a camera on a monitor provided at a driver's seat, wherein the image is of an area behind the vehicle;

10 superposing and displaying a guide marking for aiding steering upon the image, wherein the guide marking provides a driver with a first indication of the width of the vehicle and a second indication of a prospective path of the vehicle, the prospective path depends on the position of the steered wheels; and

15 causing the vehicle to proceed on a route when the vehicle is driven so that the guide display is positioned at a center of the route.